## Notes on The Ascent of Man by Jacob Bronowski

### “Lower Than the Angels”

### Prehistory

Quote 1: “The cultures of man that we recognize best began to form in the most recent Ice Age, within the last hundred or even fifty thousand years. That is when we find the elaborate tools that point to sophisticated forms of hunting: the spear-thrower…the fully barbed harpoon…the flint master tools that were needed to make the hunting tools.”

Brief Summary/Explanation:

Quote 2: “Man survived the fierce test of the Ice Ages because he had the flexibility of mind to recognize inventions and to turn them into community property…. The Ice Ages…forced him to depend less on plants and more on animals…. It became less attractive to stalk single animals, however large. The better alternative was to follow herds and not to lose them—to learn to anticipate and in the end adopt their habits, including their wandering migrations.”

Brief Summary/Explanation:

### “The Harvest of the Seasons”

### Early Agriculture

Quote 3: “It took at least two million years for man to change …to the modern form, Homo sapiens…. But it has taken much less than twenty thousand years for Homo sapiens to become the creatures that you and I aspire to be: artists and scientists, city builders and planners for the future, readers and travelers, eager explorers of natural fact and human emotion…. That is the pace of cultural evolution; and once it takes off [it goes] at least a hundred times faster than biological evolution.”

Brief Summary/Explanation: It took 2 million years for humans to evolve to the lower primates, but only 20,000 years for us to go from being hunter-gathers to civilized humans……………….

Quote 4: “Why did the cultural changes that have made man master of the earth begin so recently? Twenty thousand years ago man in all parts of the world he had reached was a forager and a hunter…. By ten thousand years ago that had changed, and he had begun in some places to domesticate some animals and cultivate some plants; and that is the change from which civilization took off. It is extraordinary to think that only the last twelve thousand years has civilization, as we understand it, taken off. There must have been an extraordinary explosion about 10,000 B.C.—and there was. But it was a quiet explosion…. It is usually called the ‘agricultural revolution.’ But I think of it as something much wider, the biological revolution. There was intertwined in it the cultivation of plants and the domestication of animals in a kind of leap-frog…. It became necessary for man to settle.”

Brief Summary/Explanation:

Quote 5: “The largest single step in the ascent of man is the change from nomad to village agriculture. What made that possible? An act of will by men, surely; but with that, a strange and secret act of nature. In the burst of new vegetation at the end of the Ice Age, a hybrid wheat appeared in the Middle East. It happened in many places: a typical one is the ancient oasis of Jericho.

“Jericho is older than agriculture. The first people who came here an settled by the spring [of water]…were people who harvested wheat, but did not yet know how to plant it. We know this because they made tools for the wild harvest, and that is an extraordinary piece of foresight. They made sickles out of flint which have survived; John Garstang found them when he was digging here in the 1930s. The ancient sickle edge would have been set in a piece of gazelle horn, or bone.”

“The turning-point to the spread of agriculture in the Old World was almost certainly the occurrence of two forms of wheat with a large, full head of seeds…. By some genetic accident, the wild wheat crossed with a natural goat grass and formed a fertile hybrid…. There was a second genetic accident… Emmer [wheat] crossed with another natural goat grass and produced a still larger hybrid… which is bread wheat…. Now we have a beautiful ear of wheat…. If I break it up…the chaff flies off and every grain falls exactly where it grew…. Suddenly, man and the plant have come together. Man has a plant that he lives by ….”

Brief Summary/Explanation: A huge turning point came in human s settled in places near sources of water can grow grain. Near Jericho , bread wheat emerged after crossing/ breading with other various types of grass.

Quote 6: “The ancient sweet-water city of Jericho was an oasis on the edge of the desert whose spring has been running from prehistoric times right into the modern city today. Here wheat and water came together and, in that sense, here man began civilization…. Wheat and water, they make civilization: they make the promise of the land flowing with milk and honey. Wheat and water turned that barren hillside into the oldest city of the world.”

Brief Summary/Explanation:

Quote 7: “By 6,000 B.C. Jericho was a large agricultural settlement. Kathleen Kenyon [the archeologist who excavated Jericho in the 1950s] estimates that it contained three thousand people, and covered eight or nine acres within the walls. The women ground the wheat with the heavy stone implements [mortar and pestle] that characterize a settled community. The men shaped, patted and moulded clay for building-bricks, some of the earliest known. The marks of the brick-makers thumbprints are still there. Man, like the bread wheat, is now fixed in this place.”

Brief Summary/Explanation:

Quote 8: “Every stage in the domestication of plant and animal life requires inventions, which begin as technical devices and from which flow scientific principles…. The richness [of inventions] comes from the interplay of inventions; a culture is a multiplier of ideas, in which each new device quickens and enlarges the power of the rest.”

“We can see this in the change from the early sickle to the late… the sickle of ten thousand years ago of the gatherer and the sickle of nine thousand years ago when wheat was cultivated…. The cultivated wheat is sawed with a serrated edge: because if you hit the wheat, then the grains will fall to the ground; but if you gently saw it, the grains will be held in the ear of [wheat]. And sickles have been made like this ever since then…”

Brief Summary/Explanation:

Quote: The most powerful invention in all of agriculture is the plough. We think of the plough as a wedge dividing the soil. And the wedge is an important early mechanical invention. But the plough… is a lever which lifts the soil, and it is among the first applications of the principle of the level…. Thousands of years [ago] the ploughmen of the Middle East had been saying ‘Give me a lever and I will feed the earth.’”

Brief Summary/Explanation:

Quote: “The wheel is found for the first time before 3,000 BC in what is now southern Russia. These early finds are solid wooden wheels attached to an older raft or sledge for drawing loads, which thereby is converted into cart. From then on the wheel and the axle becomes the double root from which invention grows… It is turned into an instrument for grinding wheat…. The wheel becomes a model for all motions of rotation.”